United Engineering Company Shipyard,
Boiler House
(United Engineering Company Shipyard, Power House No. 62T)
(Building No. 4)
2900 Main Street
Alameda
Alameda County
California

HAER No. CA-295-D

HAER
CAL
1-ALAM,
4D-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California

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HISTORIC AMERICAN ENGINEERING RECORD

UNITED ENGINEERING COMPANY SHIPYARD, BOILER HOUSE
(United Engineering Company Shipyard, Power House No. 62T)
(Building No. 4)

HAER No. CA-295-D

Location: 2900 Main Street
Alameda
Alameda County
California

U.S.G.S. 7.5 minute Oakland West, Calif. quadrangle.
Universal Transverse Mercator Coordinates: 10.562520.4184 2460

Present Owners:

074-0891-003	074-0905-001-04
City of Alameda	Alameda Gateway Ltd.
City Hall	2900 Main Street
Alameda, CA 94501	Alameda, CA 94501

Present Occupant: Alameda Gateway Ltd.

Present Use: Storage

Significance: The boiler house is a contributing structure in the United Engineering Company Shipyard historic district that has been determined eligible for the National Register of Historic Places. The United Engineering Company Shipyard, established in 1941 to build and repair ships for the U.S. Navy, is the last surviving of several large World War II shipyards in Alameda. United Engineering built 21 tugboats and repaired hundreds of ships during the war. The facility was one of the largest employers in Alameda and played an important economic and social role in the city. In addition to its role in the shipyard, this building was also part of a previous operation at this site — the West Alameda Yard of the Southern Pacific Company. The West Alameda Yard was developed in 1911 for the maintenance and repair of electric cars on the East Bay transit lines of Southern Pacific. This building has been important in both the rail yard and shipyard eras as the source of steam and in the shipyard era as the source of compressed air for the operation of machinery.

PART I. HISTORICAL INFORMATION

A. Physical History

1. **Date of erection:** the boiler house was built in 1911.

2. **Architects and engineers:** the original designers of the building in 1911 are unknown. Because none of the early drawings of the building were signed, they appear to be in-house products of the Southern Pacific Company.

   In 1945, a large addition and numerous alterations were made to the building. John Hudspeth, an architect responsible for the design of many of the buildings at the shipyards in the early 1940s, created the drawings for sections of the addition. The architects of the later addition are not known.

   John Hudspeth was an East Bay architect about whom little is known. He is not listed in an index to architectural licenses in California up to 1929. Information in the Oakland Cultural Heritage Survey identified three buildings by Hudspeth. In Oakland, he designed 1720 Franklin Street in 1941 and 2565 West Street in 1951. In Berkeley, he designed a building in Shattuck Square. In addition, he did work for the Mason-McDuffie Company and for the City of Oakland Department of Parks and Recreation.

3. **Original and subsequent owners, occupants, and uses:** the boiler house was built while Southern Pacific owned the railyards. The building housed a fire pump and two boilers that created the hot water and steam used throughout the yards for heat and probably for powering hydraulic equipment in the repair shops. The ell on the west side of the building was a well house.

   United Engineering bought the property in 1941 just prior to U.S. involvement in World War II. In 1946 Matson Navigation purchased the yards, including the boiler house. Todd Shipyards Corporation leased the property in 1948 and purchased it in 1959. Finally, the current owner, Alameda Gateway, bought the property in 1983.

   During the Southern Pacific years, this building was identified as the boiler house. On an early plan prepared for the United Engineering Company, dated 24 January 1942, the original portion of the building was called "power house" and the word "compressor" was written over the large southern addition. During World War II, the building was called the power house. On the 1948 Sanborn map, the original part of the building was identified as an engine room and boiler room, the rear addition was the compressor room, and another addition, on the west side of the original structure, was a boiler room.

At that time, the building was labeled no. 15. During the Todd Shipyard years, it was known as building no. 62. Today, it continues to be called building 62T.[1] The boiler is currently not in use, and the building is used for storage.

4. **Builder, contractor, suppliers:** unknown

5. **Original plans and construction:** the *boiler house Plans and Sections* were drawn in November of 1910 and were revised December 19, 1910.[2] The building was constructed as a one-story structure with a rectangular plan and a small ell on the west side. The walls, floors, and roofs were made of reinforced concrete.

6. **Alterations and additions:** in the 1940s numerous buildings were constructed throughout the shipyards. In order to accommodate the increased demand for hot water and steam that resulted, the boiler house was enlarged in several phases.

   In 1941, an addition was built on the south side of the structure. Unlike the original building, the new section was built of wood frame covered with galvanized corrugated iron. This section was also a large open space that housed a compressor. The addition connected the structure with what appears to have been a small freestanding structure built around the same time as the original building.

   Architect John Hudspeth drew plans for a reinforced concrete addition in April of 1945. The addition was a single large room built on the west side of the original building. The stucco walls and coursing along the cornice of the new section were made to match the existing building. The structure housed a 500-horsepower Llewellyn boiler and a 12,000-gallon water tank.

B. Historical Context

The boiler house was built in 1911 while Southern Pacific owned the yards. The ell on the west side of the building was a well house.

In 1941 United Engineering purchased the yards. Shortly thereafter, the company secured contracts from the United States Navy to build tugboats for the war effort and later to repair larger ships. New buildings were needed as facilities for

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1 "Insurance Recap and Allocation – All Properties." On file at Alameda Gateway Ltd., Alameda, CA, April, 1995.

2 *Boiler House Plans and Sections* (West Alameda, CA: Southern Pacific So. Inspection & Repair Shop, November 1910, revised 19 December 1910).

shipbuilding and repair and to accommodate the enormous increase in staff. With permission from the U.S. Navy Bureau of Yards and Docks, United Engineering constructed numerous buildings throughout the yards. The growth in facilities, equipment, and personnel translated into a demand for more steam heat and power and hot water. As a result, over the next decade the boiler house was expanded to nearly three times its original size.

In recent years the building has been used for storage. The boiler and auxiliary equipment remain intact in the 1945 addition. However, most of the equipment has been removed from the 1911 building and the 1941 addition.

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. **Architectural character:** the boiler house has little ornamentation and is primarily utilitarian in appearance. However, the flat roof, stucco-covered walls, symmetrical facades, and courses along the cornice of the original building and the 1945 addition faintly echo the far more elaborate Beaux-Arts classical power houses of the period, such as the World War I era power house designed by Frederick H. Meyer for Bethlehem Shipyard east of Webster Street. The materials and details of the boiler house match those of the much later office and substation (Building No. 12).

2. **Condition of fabric:** many of the windows have been boarded over, and the equipment has been removed from some of the rooms, but in general, the power house appear to be in good condition. The boiler, tanks, and other equipment in the 1945 addition are particularly well preserved.

B. Description of Exterior

1. **Overall dimensions:** the boiler house is a one-story building with a very irregular plan. Its maximum dimensions are 100 feet across the east and west facades and 48 feet across the north and south facades. The building has a total area of 5,000 square feet.[3]

2. **Foundation:** all sections of the building have reinforced concrete foundations. The 1911 and 1945 sections also have reinforced concrete footings and pilings. The 1945 addition has four pilings across the north and south ends of the building and six across the east and west.

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3 "Insurance Recap and Allocation – All Properties."

3. **Walls:** the exterior walls of the original portion of the buildings and the 1945 addition are covered with cement stucco. The exterior walls of the rear addition are covered with galvanized, corrugated iron. Like the original and 1945 sections of the building, the finish of the walls on the small rear ell is cement stucco.

4. **Structural system, framing**: in the original portion of the boiler house, the main structural members are reinforced concrete columns and girders with board-formed concrete infill. (A square reinforcing bar is visible on the southeast corner of the original building where the exterior concrete has worn away.) Three girders span the width of the building and are 18 inches deep and 36 inches wide. They are reinforced with vertical and diagonal rods. The roof is a reinforced concrete slab, which is 5 inches thick.[4]

   The 1945 addition is supported by a system of reinforced concrete columns and girders and steel I-beams. Between the columns there is concrete block infill. The concrete columns and girders are 8 by 8 inches. There are also concrete beams over the windows. In addition, steel I-beams line the interior of the walls. The vertical beams are 8 inches wide, and the horizontal beams are 12 inches wide. Six-inch vertical beams and 8-inch horizontal beams support the roof ventilator. All I-beam joints are bolted and welded, and the beams were then painted with one coat of red lead and oil.[5] The concrete floor is reinforced with ½ inch diameter bars placed at 12-inch intervals in both directions.

   The rear addition is a wood, balloon-frame structure. Three trusses span the width of the building and support the roof. The trusses are built of 4 by 6 inch boards, 6 by 6 inch boards, and 2 by 8 inch boards. The roof trusses rest on 6 by 12 inch wall posts.

   The small rear ell is made of reinforced concrete.

5. **Porches**: there is a recessed porch on the east side of the building. The porch runs from the original structure, along the frame addition, to the rear ell. The porch has a shed roof (which is badly deteriorated) supported by wood posts and metal pipes. The floor of the porch is concrete with steel deck plates inset to cover access holes.

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4 *Boiler House Plans and Sections*. West Alameda, CA: Southern Pacific So. Inspection & Repair Shop, November 1910, revised 19 December 1910.

5 Independent Iron Works, Ltd., Carrico & Gautier. *Addition to Power House, United Engineering Co.* (Oakland, CA: United Engineering Co. Ltd., 29 May 1945).

6. **Openings**:

   a. **Doorways and doors**: the 1911 building currently has one exterior door — an original metal rolling door on the south end. The 1945 addition has a metal rolling door on the north end, which was salvaged from the original building (there were two on the south end of the 1911 building).[6] The rear frame addition has a pair of modern, wooden, hollow-core doors on the west side and a single wood door covered with galvanized steel on the east side. The rear ell has a pair of plank doors on the west end.

   b. **Windows:** the original building had large wooden six-over-six double-hung windows with three-by two divided-light transoms above. There are four of these windows on the east side and three on the north facade but they have been boarded over with plywood. Two windows that were on the exterior of the 1911 building are visible on what is now the interior wall between the original building and the 1945 addition. The openings have concrete sills.

      The west wall of the 1945 addition has large, industrial, divided-light windows and transoms. The sashes are made of steel and are fitted with patterned glass. In the center of each fixed window, there is a small awning window. The frame addition has 3-by-3 divided light windows with metal sashes. Like the original building, the rear ell also has wooden double hung windows but they have been boarded over with plywood on the exterior.

7. **Roof:**

   a. **Shape, covering:** the original building, 1945 addition, and rear ell have flat roofs. The covering of these sections is not visible. The rear frame addition has a gabled roof that is covered with asphalt rolled-strip roofing.

   b. **Cornice, eaves:** all sections of the building with flat roofs have two projecting courses running around the cornice. The rear frame addition has overhanging eaves.

   c. **Dormers, cupolas, towers, vents:** the boiler house has a large number of vents and equipment on the roof. The original building and 1945

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6 John Hudspeth, Architect, *Addition to Power House (*Alameda, CA: United Engineering Co. Ltd. Alameda Shipyard, 30 April 1945) "Elevations."

addition each have a large rectangular ventilator with louvered vents. The 1945 addition also has 2 discharge pipes that project from the boiler through the roof. The well house of the original building has a large metal cylindrical stack, blower, motor, and a reinforced concrete post and beam structure. The rear frame and addition has four ventilators on the roof. A crane made of heavy wooden beams and a vent sit on the roof of the rear ell. The side porch also has a vent on its roof.

C. Description of Interior

1. **Floor plan:** the boiler house is comprised primarily of several large rooms. The original portion of the building is comprised of two rooms: a large rectangular room with a small room to the west creating an "L" shape. The 1945 addition is also a single large room. It is located west of the original building in the nook of the "L". South of these rooms, the frame building is a composed of a single large room. The rear ell connects with the southeast corner of the building.

2. **Stairways:** although there isn't a second floor, in the boiler room there are three raised platforms that overlook the equipment: one in the northeast corner, one in the northwest corner, and another along the south wall. The platforms and ladders that provide access to them are made of steel.

3. **Flooring:** all areas of the building have reinforced concrete floors. The floor of the original portion of the building appears to have been recently resurfaced except for a rectangular hole in the northwest corner of the original boiler room, which is now used for storage. Pipes and valves are located in the hole. The floor of the 1945 addition is also concrete covered with "wood float finish" cement.[7] This room has several steel deck plates inset into the floor, which provide access to below-ground pipes. The concrete floor of the rear frame addition is interrupted by numerous pipes, raised concrete machinery platforms, and steel deck plates which provide access to below-grade pipes.

4. **Wall and ceiling finish:** the walls and ceiling of the interior of the 1911 building are made of projecting concrete columns and beams infilled with board-formed concrete. Numerous pipes and conduits run along the walls. There is a large rectangular ventilator in the ceiling, which provided the room with air and light. The small ell of the 1911 structure has similar wall and ceiling finishes. However, the ceiling of the ell is much lower than the larger

7 John Hudspeth, Architect, *Foundation & Anchor Bolt Plan for a 500 H.P. Llewllyn Boiler* (Alameda, CA: United Engineering Co. Ltd., 16 March 1945).

room, and there is a rectangular hole in the ceiling, which provides access to the equipment on the roof.

Three of the walls of the 1945 addition are exposed concrete block and reinforced concrete columns. The fourth wall is the exterior concrete wall of the original building. The ceiling (including the ventilator) is made of 3 by 15 foot concrete panels supported by steel beams.

The rear frame addition has exposed frame walls and a trussed ceiling.

The wall and ceiling treatments of the rear ell are similar to the original portion of the building.

5. **Openings:**

    a. **Doorways and doors:** most of the interior doors have been replaced by hollow core wooden doors.

    b. **Windows:** the interior openings are similar to the exterior openings. All windows of the original building have been boarded over with plywood. The metal sash windows of the 1945 addition have concrete sills. The windows of the rear frame addition do not have sills and those on the east facade are boarded over with plywood on the interior. The wooden windows of the rear ell have wooden frames.

6. **Hardware:** most original hardware has been removed and replaced with fixtures of standard manufactured design.

7. **Mechanical equipment:**

    a. **Heating, air conditioning, ventilation:** there are no heating or air conditioning systems, and ventilation is through windows and roof ventilators.

    b. **Lighting:** the building was wired with electricity at the time of its construction. All sections of the building are lit with what appear to be the original incandescent fixtures. In the 1911 section of the building, the lights hang from the overhead girders and the electrical conduits run along the underside of the girders. The lighting fixtures in the frame addition hang from the purlins.

    c. **Plumbing:** the building has an extensive network of pipes, particularly in the room that houses the boiler. Along the east wall of the boiler

room there are numerous pipes and valves to regulate and disperse steam and water. There is a very large pipe with valves in the southeast corner of the frame addition. There are no restrooms.

d. **Equipment:** as the boiler bouse for the railyard and later the shipyard, the building boused a large amount of equipment. Most of the equipment in the 1911 section of the building has been removed. One "Sullivan Starting Switcb No. 1" remains in the southwest corner of the room (the "storage" space east of the "boiler room" on the plan).

The original equipment in the 1945 addition is largely intact. A large 500-horse power Llewllyn boiler sits in the center of the room. The boiler bas a brick base laid in English bond reinforced on the exterior with steel I-beams. A large 12,000-gallon steel stowage tank sits on top of the brick base.[8] Numerous pipes run to and from the boiler, and ladders around the boiler provide access to all sides of the equipment. Plans for the 1945 addition indicate that the boiler was salvaged but do not indicate the previous owner or location.[9] A "feed tank" sits in the northwest corner of the room.

The frame addition also housed a large amount of equipment, but most of it has since been removed. In the center of the room there are two, large, raised concrete pads of irregular shapes that were built as bases for heavy machinery. The platforms vary from 1 ½ feet to 3 feet bigh and have impressions in the concrete from pipes and equipment. A 440 Volt Ingersol-Rand Starting Switch and an air compressor sit against the north wall.

D. Site

1. **General setting and orientation:** the boiler house is located south of the Inspection and Repair Shops building and east of the office building. The building is surrounded on the north and west sides with asphalt and on the east and south sides with dirt.

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8 *Heating Coils for 12,000 Gal. Stowage Tank (Yard Power Plant Install'n),* (Oakland, CA: United Engineering Co. Ltd, 1 June 1945).

9 John Hudspeth, Architect, *Addition to Power House,* sheet 3.

PART III. SOURCES OF INFORMATION

A. Original Architectural Drawings, Maps and Plans

Addition to Power House, Roof Plan Revisions. Alameda, CA: United Engineering Co. Ltd. Alameda Shipyard, 25 September 1945.

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Edward K. Hussey Engineering Corporation. Survey No. 4050, plan. Prepared for United Engineering Company Ltd. 24 January 1942.

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Hudspeth, John, Architect. *Addition to Power House.* Alameda, CA: United Engineering Co. Ltd. Alameda Shipyard, 30 April 1945.

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Independent Iron Works, Ltd., Carrico & Gautier. *Addition to boiler house, United Engineering Co.* Oakland, CA: United Engineering Co. Ltd., 4 August 1945.

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United Engineering Company Ltd. *Alameda Shipyard: Map Showing Existing Facilities and Those Under Construction.* 22 October 1942.

United Engineering Company Ltd. *Map of Alameda Shipyard Showing Existing and Proposed Additional Facilities.* Plan no. UEC-A-1-7. 14 June 1943.

B. Bibliography

Thompson, Richard G., Lieutenant Colonel, San Francisco District, Corps of Engineers. Letter to Cherilyn Widell, State Historic Preservation Officer, requesting Determination of Eligibility. 30 April 1998.

United States. Army Corps of Engineers – San Francisco District and California. State Historic Preservation Officer. Memorandum of Agreement Regarding the Oakland Harbor Navigation Improvements Project, Alameda County, California. Signed 31 January 2001 and 22 January 2001.

Widell, Cherilyn, State Historic Preservation Officer. Letter to Richard G. Thompson, Lieutenant Colonel, San Francisco District, Corps of Engineers, Regarding Oakland Harbor Ship Channel Deepening and Improvements, Alameda County [Determination of Eligibility Concurrence]. 9 June 1998.

C. Likely Sources Not Yet Investigated

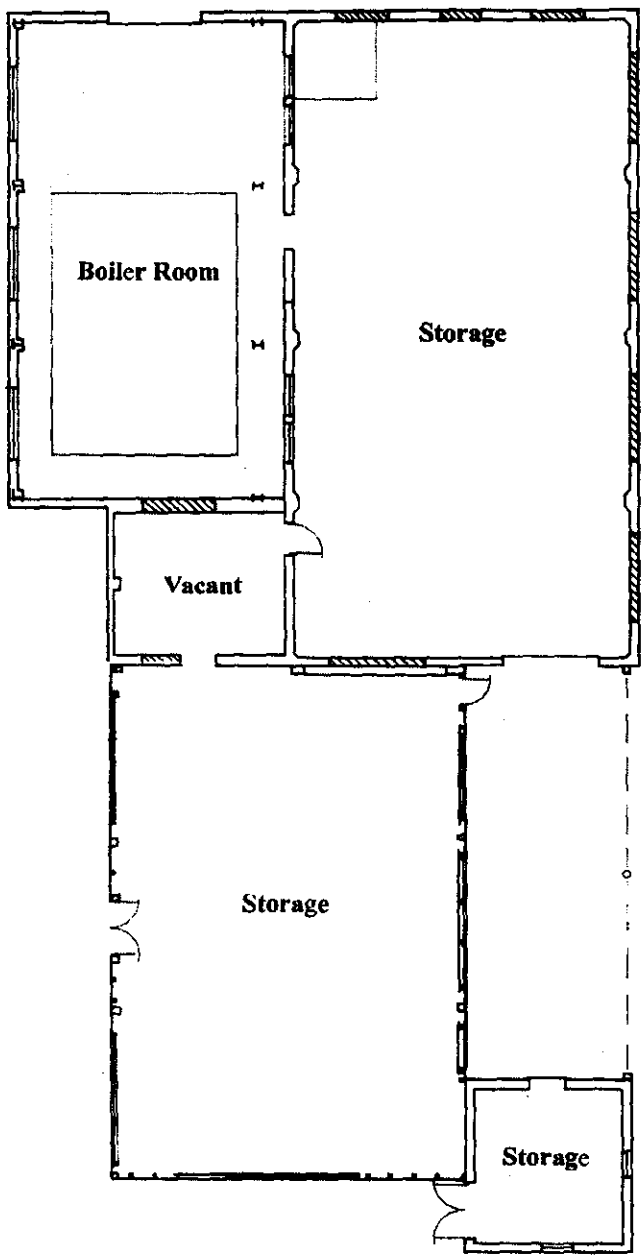
Additional photographs in the collection of the Technical Services Group document the early years of the facility as a rail yard. Some of these photographs have been misplaced, but may turn up for future research. In addition, photographs and other records about the West Alameda Yard of Southern Pacific may become available at the Western Railway Museum in Suisun City when a new building for their archives is completed.

PART IV. PROJECT INFORMATION

This report was prepared for the U.S. Army Corps of Engineers and the Port of Oakland in accordance with a Memorandum of Agreement (MOA) between the U.S. Army Corps of Engineers, San Francisco District and the California State Historic Preservation Officer concerning the former United Engineering Company shipyard. The Port of Oakland and the City of Alameda were concurring parties to the MOA. The MOA was created because of a proposal by the U.S. Army Corp of Engineers in partnership with the Port of Oakland to sponsor the Oakland Harbor Navigation Improvements Project. This project "would deepen Oakland Harbor channels and berth areas from –42 feet mean lower low water (MLLW) to –50 feet MLLW, with 2 feet overdredge allowance" and widen some portions of the channels. These actions, which would constitute an Undertaking under Section 106, would result in the demolition of several buildings and structures at the former United Engineering Company Shipyard. Because the shipyard had been determined eligible for the National Register of Historic Places, the Undertaking would have an adverse effect on the property. Under the MOA, the following HAER documentation has been prepared: a written historic and descriptive report on the shipyard as a whole, seventeen separate reports on individual buildings and structures in the shipyard, including this report, and photographic documentation.

This building will not be demolished by the federal undertaking.

This report was prepared by Jody Stock, architectural designer, and Michael R. Corbett, architectural historian. Corbett was a subcontractor to Basin Research Associates of San Leandro. Basin Research was under contract to g. borchard & associates.



NORTH

BUILDING NO. 4: BOILER HOUSE

0 4 8 16 24 feet

Drawing prepared by Jody R. Stock
2/10/01

*The north three rooms of the building are based on drawings, *Boiler House Plans and Sections*. West Alameda, CA: Southern Pacific So. Inspection & Repair Shop, November 1910, revised 19 December 1910, and John Hudspeth, Architect, *Addition to Power House*. Alameda, CA: United Engineering Co. Ltd. Alameda Shipyard, 30 April 1945. The southern two rooms were measured by Stephen Hardy and Jody Stock on 1/8/01.